

WHAT IS CLAIMED IS:

1. A staple for holding a tubular member within a corrugated conduit, wherein the tubular member comprises an outer surface, the corrugated conduit comprises an open end and an inner surface with successive and alternating annular peaks and valleys, the staple comprises a mechanically compliant convex wall slanted in a direction opposite to a direction of insertion of the tubular member in the corrugated conduit through the open end of said corrugated conduit, and said mechanically compliant convex wall comprises:
- an elongated wall base connected to the outer surface of the tubular member;
 - a sloping convex surface for sliding over the annular peaks and valleys upon inserting the tubular member in the corrugated conduit through the open end of said corrugated conduit; and
 - a free edge for engaging the inner surface of the corrugated conduit and thereby locking the tubular member inside the corrugated conduit when the mechanically compliant convex wall has been inserted in one of the valleys of the inner surface of the corrugated conduit.
2. A staple as recited in claim 1, wherein the elongated wall base is a curved base.
3. A staple as recited in claim 1, wherein the free edge of the mechanically compliant convex wall is a curved edge.
4. A staple as recited in claim 3, wherein:
- the tubular member defines a geometrical longitudinal axis; and
 - the free edge of the mechanically compliant convex wall is lying in a plane substantially perpendicular to the geometrical longitudinal axis of the tubular member.
5. A staple as recited in claim 2, wherein:

the curved elongated wall base has two opposite ends;

the free edge of the mechanically compliant convex wall is a curved edge having two opposite ends; and

the two opposite ends of the curved elongated wall base intersect with
5 the two opposite ends of the curved free edge of the mechanically compliant convex wall, respectively.

6. A staple as recited in claim 1, wherein the mechanically compliant convex wall presents the shape of a portion of hemisphere.
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7. A staple as recited in claim 1, wherein the mechanically compliant convex wall presents the shape of a portion of cone.

8. An inside cap for closing an open end of a corrugated conduit with an
15 inner surface having successive and alternating annular peaks and valleys, the inside cap comprising:

a tubular member defining a geometrical longitudinal axis, having an outer surface, a proximal end and a distal end, closed by a wall perpendicular to the geometrical longitudinal axis, and provided with at least one staple
20 comprising a mechanically compliant convex wall slanted toward the distal end of the tubular member and having:

an elongated wall base connected to the outer surface of the tubular member;

a sloping convex surface for sliding over the annular peaks and valleys upon inserting the tubular member in the corrugated conduit through the open end of said corrugated conduit; and
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a free edge for engaging the inner surface of the corrugated conduit and thereby locking the tubular member inside the corrugated conduit when the mechanically compliant convex wall has been inserted
30 in one of the valleys of the inner surface of the corrugated conduit.

9. An inside cap as recited in claim 8, wherein the elongated wall base is a curved base.

10. An inside cap as recited in claim 8, wherein the free edge of the
5 mechanically compliant convex wall is a curved edge.

11. An inside cap as recited in claim 9, wherein the free edge of the mechanically compliant convex wall is lying in a plane substantially perpendicular to the geometrical longitudinal axis of the tubular member.
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12. An inside cap as recited in claim 9, wherein:
the curved elongated wall base has two opposite ends;
the free edge of the mechanically compliant convex wall is a curved edge having to opposite ends; and
15 the two opposite ends of the curved elongated wall base intersect with the two opposite ends of the curved free edge of the mechanically compliant convex wall, respectively.

13. An inside cap as defined in claim 8, wherein the tubular member
20 comprises a plurality of staples distributed on the outer surface of the tubular member along a circle centered on the geometrical longitudinal axis.

14. An inside cap as defined in claim 8, wherein the tubular member further comprises at least one stopper on the outer surface of said tubular
25 member, the open end of the corrugated conduit having a free edge abutting against said at least one stopper upon inserting the tubular member in the corrugated conduit through the open end of said corrugated conduit to limit the course of the tubular member within the corrugated conduit.

15. An inside cap as defined in claim 14, wherein the axial distance
30 between said at least one stopper and said at least one staple is so selected that said at least one staple is located in one of the valleys of the inner surface of the

corrugated conduit when the free edge of the open end of the corrugated conduit abuts against said at least one stopper.

16. An inside cap as defined in claim 14, wherein:
5 the distal end of the tubular member comprises an annular rim; and
said at least one stopper comprises a plurality of semicircular flanges
extending radially from and distributed along the annular rim of the distal end of
the tubular member.

10 17. An inside cap as defined in claim 8, further comprising a plurality of
axial ribs of guidance circumferentially distributed on the outer surface of the
tubular member, said ribs of guidance sliding on the inner surface of the
corrugated conduit upon inserting the tubular member in the corrugated conduit
through the open end of said corrugated conduit.

15 18. An inside cap as defined in claim 17, wherein the ribs of guidance
comprise at the proximal end of the tubular member ends that are bevelled to
facilitate insertion of the tubular member in the corrugated conduit through the
open end of said corrugated conduit.

20 19. An inside cap as defined in claim 8, wherein the perpendicular wall is
situated at the proximal end of the tubular member and the outer surface of said
tubular wall comprises a rounded annular rim at the annular intersection with the
perpendicular wall to facilitate insertion of the tubular member in the corrugated
25 conduit through the open end of said corrugated conduit.

20. A coupling for interconnecting first and second corrugated conduits
each having an open end and an inner surface with successive and alternating
annular peaks and valleys, comprising:
30 a tubular member having two opposite open ends, defining a geometrical
longitudinal axis, having an outer surface, having a first section for insertion
within the first corrugated conduit through the open end of said first corrugated

conduit, a second section for insertion within the second corrugated conduit through the open end of said second corrugated circuit, wherein each of said first and second sections comprises at least one staple comprising a mechanically compliant convex wall slanted toward the open end of the other of said first and second sections, and said mechanically compliant convex wall comprises:

an elongated wall base connected to the outer surface of the tubular member;

a sloping convex surface for sliding over the annular peaks and valleys upon inserting the section of the tubular member in the corrugated conduit through the open end of said corrugated conduit; and

a free edge for engaging the inner surface of the corrugated conduit and thereby locking the section of the tubular member inside the corrugated conduit when the mechanically compliant convex wall has been inserted in one of the valleys of the inner surface of the corrugated conduit.

21. A coupling as recited in claim 20, wherein the elongated wall base is a curved base.

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22. A coupling as recited in claim 20, wherein the free edge of the mechanically compliant convex wall is a curved edge.

23. A coupling as recited in claim 20, wherein the free edge of the mechanically compliant convex wall is lying in a plane substantially perpendicular to the geometrical longitudinal axis of the tubular member.

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24. An inside cap as recited in claim 21, wherein:
the curved elongated wall base has two opposite ends;
the free edge of the mechanically compliant convex wall is a curved edge having to opposite ends; and

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the two opposite ends of the curved elongated wall base intersect with the two opposite ends of the curved free edge of the mechanically compliant convex wall, respectively.

5 25. A coupling as defined in claim 20, wherein each of the first and second sections of the tubular member comprises a plurality of staples distributed on the outer surface of the tubular member along a circle centered on the geometrical longitudinal axis.

10 26. A coupling as defined in claim 20, wherein the tubular member further comprises at least one stopper on the outer surface of said tubular member between said first and second sections of the tubular member, the open end of the each of said first and second corrugated conduits having a free edge abutting against said at least one stopper upon inserting the corresponding
15 tubular member in the corrugated conduit through the open end of said corrugated conduit to limit the course of the tubular member within the corrugated conduit.

20 27. A coupling as defined in claim 26, wherein the axial distance between said at least one stopper and said at least one staple of each of said first and second sections is so selected that said at least one staple is located in one of the valleys of the inner surface of the corrugated conduit when the free edge of the open end of the corrugated conduit abuts against said at least one stopper.

25 28. A coupling as defined in claim 26, wherein said at least one stopper comprises a plurality of tabs projecting radially from the outer surface of the tubular member and distributed along a circle centered one the geometrical longitudinal axis.

30 29. A coupling as defined in claim 20, wherein each of said first and second sections further comprises a plurality of axial ribs of guidance circumferentially distributed on the outer surface of the tubular member, said ribs

of guidance sliding on the inner surface of the corrugated conduit upon inserting the corresponding section of the tubular member in the corrugated conduit through the open end of said corrugated conduit.

5 30. A coupling as defined in claim 29, wherein the ribs of guidance comprises at the corresponding open end of the tubular member ends that are bevelled to facilitate insertion of the tubular member in the corrugated conduit through the open end of said corrugated conduit.

10 31. A coupling as defined in claim 20, wherein each of said first and second sections comprises, at the corresponding open end, a bevelled rim to facilitate insertion of the section of the tubular member in the corrugated conduit through the open end of said corrugated conduit.